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The Sun Shining in the Middle of the Night: How Moving Beyond IP Authentication Does Not Spoil the Fun, Ease, or Privacy of Accessing Library Resources

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Abstract

Gone are the days of unsecure access to electronic resources. Adoption of standards regarding secure access to resources is a step forward for the security and integrity of library resources. GALILEO, Georgia's virtual library, is in the process of transitioning to authentication using OpenAthens. This paper discusses the technology behind single sign-on authentication and motivations for moving in this direction, and ends with a discussion of the Gwinnett Technical College library's pilot site implementation of OpenAthens authentication.

Traditional methods by which library patrons access information have continuously evolved. Gone are the days when print resources were the only game in town. Electronic resource usage is booming and will only continue to grow in the coming years. Librarians must be forward-thinking about electronic resource usage and access by presenting resources to our patrons in a manner that ensures seamless access while diligently protecting their privacy.

This paper will briefly discuss the changing nature of library electronic resource authentication, specifically discussing the RA21: Resource Access for the 21st Century initiative and the adoption of OpenAthens authentication by GALILEO, Georgia's virtual library consortia with a specific case study of the Gwinnett Technical College library's pilot site implementation.

Protecting Electronic Resources, or Allowing the Sun to Shine at Night

There are a host of practical issues faced by libraries and librarians when providing access to electronic resources on behalf of patrons. Verminski and Blanchat (2017) emphasize that "electronic resources are consuming collection budgets, and collection development practices have become largely focused on assessment using data-driven methods to justify expenditures and ensure valuable acquisitions dollars are spent wisely" (p. 10). With the rising cost of electronic resource ownership or licensing, it is also critically important that authorized patron users freely access resources in a secure manner.

The most prevalent way patrons access library resources is by using proxy servers provided at the institution or consortium level that mimic Internet

protocol (IP) address ranges. Hoy (2019) provides a concise definition by relating, "IP addresses are unique numbers assigned to an individual computer, identifying it to other computers on the internet. Larger institutions can route their internet traffic through a small number of addresses, meaning thousands of users at an institution may be using the same IP to access information" (p. 81). Libraries provide remote access to materials using proxy servers that can reroute an IP address into compliance with one of the institutionally registered addresses. Verminski and Blanchat (2017) relate, "When a proxy such as EZproxy is enabled, the URL for an electronic resource is dynamically altered to redirect users to the proxy server. The EZproxy server then verifies users with a single sign-on using a library barcode or institutional ID number" (p. 104). One main consideration of IP authentication and proxy server usage is protecting legitimate secure access to library resources.

For a bit of a history lesson, consider the case of Napster, a music sharing service that rose to prominence (or notoriety) in the late 1990s and early 2000s. Bartsch (2017) capably outlines the technologies that led to the Napster revolution and points out multiple implications that these technologies created for the academic world. Bartsch (2017) further asserts, "When print academic journals were digitized, it was similar to when music became digital: an immense amount of content became instantly available and could be accessed from anywhere. Anyone who did research during this transition can attest to the effect: moving from manually recording notes taken from print indexes then hunting the library stacks, to searching on platforms such as Science Direct was transformative" (p. 346).

The emergence of digitized journals in the form of electronic resources surely allowed the sun to shine in the middle of the night for researchers as they are no longer tied to completing research during the library's open hours.

With the emergence of new technologies relating to electronic resource access, there is always the potential for malevolent misuse of the platform. Users can be tempted to share information for free or for compensation. Bartsch (2017) points out that "the evolution of academic journal creation and distribution parallels the transformation of digital music delivery and suggests changes ahead. Specifically, how digitization of content dramatically increases the potential for access; how barriers to access have led to informal and illicit sharing of licensed information; how the easy access of sharing has shaped user expectations; and how the publishing industry is innovating to preserve their business while meeting these new expectations" (p. 346). Libraries must partner with vendors and publishers to maintain a fragile balance ensuring proper access to resources with the stated goal of preserving proper copyright while avoiding information leaks. Libraries also are tasked with being good stewards of valuable resources when budgets are stagnant, or are dramatically slashed.

We have learned over time that access to electronic resources should be keenly protected, as evidenced by the case of Sci-Hub, a trove of approximately 68 million items created by a Kazakhstani researcher for the express purpose of liberating information to researchers in underprivileged areas (Cook, Levine-Clark, & Katz, 2017). This goal is contrary to the rights of authors, publishers, and legitimate library patrons. Resource sharing is a goal of libraries, of course, just not in this manner. In the wake of Sci-Hub, it was reported that "a large survey of researchers, published on the *Science* website, found that almost 88 percent of 10,839 respondents did not believe that it was wrong to use Sci-Hub. There is clearly a widespread attitude among researchers that it's okay to use (and even support) Sci-Hub" (Cook, Levine-Clark, & Katz, 2017, p. 81). With the emergence of technologies enabling easy downloading and user apathy toward sites such as Sci-Hub, we are in an era when vigilant protection of resources is key.

Seven Maids With Seven Mops: Sweeping Change to Resource Access

As outlined, the world of electronic resource access dramatically changed between the late 1990s and early

2000s to the present day. Beyond the 2000s, libraries are faced with the potential for malfeasance when accessing electronic resources. Sweeping changes are coming to the electronic resource access landscape through the development and adoption of the RA21: Resource Access for the 21st Century initiative.

The RA21 initiative is a group of interested parties including the National Information Standards Office (NISO) and the International Association for Scientific, Technical and Medical Publishers (STM), among others, who seek to create uniform access to scholarly information (RA21, 2018). Although this might seem like a lofty set of goals or expectations, these goals are on track to be realistically met through the commitment of several notable organizations signing on to serve as pilots, including OpenAthens.

To understand more about the technology behind RA21, Hoy (2019) relates that "the group has developed a model based on Security Assertion Markup Language (SAML), which is a system for institutions to federate authentication" (p. 82). Essentially, a publisher can remotely contact an organization's identity provider (IdP) to ensure the user has the proper credentials to access a buffet of resources. Hoy (2019) further explains that "because this is a standardized and federated system, users will only need to authenticate once per session; if they visit another publisher site during the same session, their home institution will already be selected, and the IdP system will have already authenticated them" (p. 82). The use of SAML authentication will revolutionize the landscape of electronic resource access at both the patron and library level.

The Time Has Come for Moving Past the Proxy Servers

GALILEO, Georgia's statewide library consortium, desired to evolve with new trends in technology and sought strategic planning assistance from the University of Georgia's Carl Vinson Institute of Government from October 2016 to June 2017. The resulting strategic planning document created a pathway for GALILEO to focus on improving user experience, access to e-resources and content, among other lofty goals. GALILEO faced almost the perfect storm of managing a large number of aging proxy servers while being mindful of user experience and the ease of accessing resources.

GALILEO's aim is to be more mindful in designing a portal with specific users and their needs in the

forefront. GALILEO also is making strides to engage in mobile-first design to address users who are accessing e-resources and content through their smart devices. With GALILEO's adoption of OpenAthens authentication users will be able to access locally purchased and consortia suite-level items in a uniform manner.

The Sage Oyster: Protecting Patron Privacy

One of the essential core values of librarianship is an eager, almost defensive protection of patron privacy. The American Library Association's Code of Ethics (1939, 2008) states, "We protect each user's right to privacy and confidentiality with respect to information sought or received and resources consulted, borrowed, acquired or transmitted." Our sacred charge to protect patron privacy is not nullified by evolving forms of technology that provide dynamic new ways to access library resources.

As librarians we must walk a tightrope to ensure patron privacy while providing robust access to library resources. We can easily manage this through careful consideration of information we pass along about our patrons to our vendors. The information we pass along about our patrons is known as an attribute, or patron attributes. The GALILEO standard is to pass along the minimum number of attributes to access information; this usually includes an institutional affiliation piece (usually a unique identifying number and/or an e-mail address). Further, after going live with OpenAthens authentication, GALILEO is affording the individual library the freedom to determine what level of customization they will pursue. For example, institutions with several schools (such as a medical school, law school, etc.) can determine if they want their students to have access to their general suite of GALILEO resources and locally purchased items, or if they want to funnel students of each school into school-only resources. At Gwinnett Technical College, for example, implementation was not as complex as all the users had access to the entire suite of resources as well as locally purchased items.

We've Had a Pleasant Run (Seriously): OpenAthens at Gwinnett Technical College

Many members of the Gwinnett Technical College library staff attended the annual GALILEO conference in July 2018. It was at this time that we were presented information about GALILEO's decision to implement OpenAthens authentication across the GALILEO platform by 2020. During this presentation

Russell Palmer, an assistant director of GALILEO, and Vee Rogacheva, user-experience designer for OpenAthens, led a call for pilot site participants. Following the conference, the Gwinnett Technical College library was chosen as a pilot site for implementation of OpenAthens authentication.

The entire process of going live with OpenAthens authentication was smooth for the Gwinnett Technical College library. The library provided GALILEO with a listing of locally purchased resources in addition to the listing of all databases provided by GALILEO. At the same time, Eduserve and GALILEO were informing various vendors and publishers that the Gwinnett Technical College library was chosen to participate as a pilot site for OpenAthens authentication. They negotiated federated access log-ins to the great majority of our resources, only encountering trouble with a few selected vendors at the statewide level. The Gwinnett Technical College library was the fifth site in Georgia to go live with OpenAthens authentication on December 17, 2018.

Immediately prior to going live, there was a bit of background work to do in ExLibris Alma™. Ken Henslee, who works on the support services team at GALILEO, provided tremendous guidance during this process. This background work included creating an integration profile for OpenAthens and editing several of the electronic collections to include information about our status with OpenAthens. This process, one of the most time-consuming, was easily accomplished during a quiet afternoon at home.

The most time-consuming part of going live with OpenAthens was changing the links on our SpringShare LibGuides™ homepage to include the OpenAthens redirector prefix. Thankfully, this project was easily completed while students were out over winter break. This project did take about a week, but it was easily completed thanks to being able to download and view the links through a spreadsheet.

As customers of SpringShare™, Gwinnett Technical College also participates in LibAnswers chat. As such, one of the most frequently asked questions through chat is about how to access GALILEO resources. Creating a canned message to ask patrons to log in to the Gwinnett Technical College Dashboard or the BlackBoard LMS was helpful in saving time while providing chat reference.

At the Gwinnett Technical College library, library staff taught research and information literacy sessions to

students, particularly in English 1101, on an almost daily basis. To evolve with our early adoption to OpenAthens, I focused on teaching students how to access GALILEO and locally purchased resources through logging into Dashboard and/or BlackBoard. I encouraged my colleagues to do this as well, and only give out the GALILEO password in “dire” situations where the user encountered issues reaching GALILEO by using the prescribed methods.

On the administrator side of OpenAthens, the Gwinnett Technical College library has been impressed by the ease of use and robust functionality of this module. In this module, library staff are easily able to add users and create credentials for guest users, view the most frequently used resources at a glance, and create redirector links to library resources, among other functionalities. Library staff were particularly impressed by the ease of determining the most frequently used resources when needed. Viewing this data will help to determine the resources to promote or possibly exchange in favor of other resources.

Library staff are cognizant that the data from OpenAthens does not consider those users who are accessing GALILEO and locally purchased resources through IP authentication (on-campus users who possibly have not entered through Dashboard or BlackBoard and off-campus users who are accessing resources through the GALILEO password). Therefore, we add our OpenAthens data with the data provided by GALILEO in the statistics reporting tool. According to GALILEO, IP authentication and OpenAthens authentication will run parallel for at least a year and possibly longer. To have an accurate accounting of all users who access library resources, it is critically important for library staff to remember to add both numbers together.

Students, faculty, and staff of the Gwinnett Technical College library report an improved ease of accessing resources. With a heightened focus on user experience and increasing measures to maintain the security and integrity of access to e-resources and content, the switch to OpenAthens authentication is a welcome change to ensure that the sun shines in the middle of the night.

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